

UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Pascal DEL GALLO, et al.

Application No.: 10/577,867

Filed: May 8, 2007

Title: Addition of (A) Blocking Agent(s) in a Ceramic Membrane for Clocking Crystalline Growth of Grains During Atmospheric Sintering

TC/A.U.: 1796

Examiner: Khanh Tuan NGUYEN

Docket No.: Serie 6356

Customer No.: 40582

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO NOTICE OF NON-COMPLIANT APPEAL BRIEF

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Brief is filed pursuant to the Notice of Non-Compliant Appeal Brief mailed September 27, 2010.

The Notice of Non-Compliant Brief notes that the summary of the claimed subject matter does not map the text of independent claim 30 to the Specification, the claims appendix includes struck-through text in claim 35, and the claims appendix does not include status identifiers for each of the claims.

Appellants have addressed each of these deficiencies and respectfully request that the Appeal Brief be entered in amended form. The summary of the claimed subject matter and the claims appendix follow page 2 of this paper.

Respectfully submitted,

/Christopher J. Cronin/
Christopher J. Cronin
Registration No. 46,513

Date: November 29, 2010
Air Liquide
200 GBC Dr
Newark, DE 19702
Phone: (302) 286-5525
Fax: (302) 286-5596

5. Summary of the Claimed Subject Matter

Claim 30 is directed to a composite (M) comprising:

a) at least 75 vol% of a mixed electronic/oxygen O^{2-} anionic conducting compound (C_1) which, at the use temperature, are in the form of a crystal lattice having oxide ion vacancies (*Specification page 3, lines 19-23*), compound (C_1) being a perovskite compound of a formula selected from the group consisting of:

- 1) $La_{(1-x-u)}Sr_xAl_uFe_{(1-v)}Ti_vO_{3-\delta}$,
- 2) $La_{(1-x-u)}Sr_xAl_uFe_{(1-v)}Ga_vO_{3-\delta}$,
- 3) $La_{(1-x)}Sr_xFe_{(1-v)}Ti_vO_{3-\delta}$,
- 4) $La_{(1-x)}Sr_xTi_{(1-v)}Fe_vO_{3-\delta}$,
- 5) $La_{(1-x)}Sr_xFe_{(1-v)}Ga_vO_{3-\delta}$ or
- 6) $La_{(1-x)}Sr_xFeO_{3-\delta}$ (*Specification page 8, lines 19-21*)

where:

- $0 < x \leq 0.5$;
 $0 \leq u \leq 0.5$;
 $(x + u) \leq 0.5$;
 $0 \leq y \leq 0.9$;
 $0 \leq v \leq 0.9$;
 $0 \leq (y + v) \leq 0.9$; and

w is such that the structure in question is electrically neutral (*Specification page 7, lines 2-9*);

b) from at least 0.1 vol% but not more than 10 vol% (*Specification page 5, lines 1-3*) of a compound (C_2) selected from the group consisting of magnesium oxide (MgO) and mixed barium titanium oxide ($BaTiO_3$) (*Specification page 5, lines 8-11 and 14-15*); and

c) from 0 vol% to 2.5 vol% of a compound (C_3) produced from at least one chemical reaction represented by the equation:



in which equation F_{C1} , F_{C2} and F_{C3} represent the respective crude formulae of compounds (C_1), (C_2) and (C_3) and x , y and z represent rational numbers greater than or equal to 0 (*Specification page 3, lines 30-37*).

Claims 31-33, 35, 46, and 50 depend from claim 30 and thus include all of the limitations therein.

8. Claims Appendix

1-29 (cancelled)

30. (previously presented) A composite (M) comprising:

a) at least 75 vol% of a mixed electronic/oxygen O²⁻ anionic conducting compound (C₁) which, at the use temperature, are in the form of a crystal lattice having oxide ion vacancies, compound (C₁) being a perovskite compound of a formula selected from the group consisting of:

- 1) $\text{La}_{(1-x-u)}\text{Sr}_x\text{Al}_u\text{Fe}_{(1-v)}\text{Ti}_v\text{O}_{3-\delta}$,
- 2) $\text{La}_{(1-x-u)}\text{Sr}_x\text{Al}_u\text{Fe}_{(1-v)}\text{Ga}_v\text{O}_{3-\delta}$,
- 3) $\text{La}_{(1-x)}\text{Sr}_x\text{Fe}_{(1-v)}\text{Ti}_v\text{O}_{3-\delta}$,
- 4) $\text{La}_{(1-x)}\text{Sr}_x\text{Ti}_{(1-v)}\text{Fe}_v\text{O}_{3-\delta}$,
- 5) $\text{La}_{(1-x)}\text{Sr}_x\text{Fe}_{(1-v)}\text{Ga}_v\text{O}_{3-\delta}$ or
- 6) $\text{La}_{(1-x)}\text{Sr}_x\text{FeO}_{3-\delta}$

where:

$$0 < x \leq 0.5;$$

$$0 \leq u \leq 0.5;$$

$$(x + u) \leq 0.5;$$

$$0 \leq y \leq 0.9;$$

$$0 \leq v \leq 0.9;$$

$$0 \leq (y + v) \leq 0.9; \text{ and}$$

w is such that the structure in question is electrically neutral;

b) from at least 0.1 vol% but not more than 10 vol% of a compound (C₂) selected from the group consisting of magnesium oxide (MgO) and mixed barium titanium oxide (BaTiO₃); and

c) from 0 vol% to 2.5 vol% of a compound (C₃) produced from at least one chemical reaction represented by the equation:



in which equation F_{C1} , F_{C2} and F_{C3} represent the respective crude formulae of compounds (C_1), (C_2) and (C_3) and x , y and z represent rational numbers greater than or equal to 0.

31. (previously presented) The composite of claim 30, in which grains of compound (C_2) have an equiaxed shape with a diameter ranging from 0.1 μm to 5 μm .

32. (previously presented) The composite of claim 30, in which the volume fraction of compound (C_3) does not exceed 1.5%.

33. (previously presented) The composite of claim 32, in which the volume fraction of compound (C_3) in the composite tends toward 0.

34. (canceled)

35. (previously presented) The composite of claim 30, in which the volume fraction of compound (C_2) does not exceed 5%.

36. (canceled)

37. (canceled)

38. (canceled)

39. (canceled)

40. (canceled)

41. (canceled)

42. (canceled)

43. (canceled)

44. (canceled)

45. (canceled)

46. (previously presented) The composite of claim 30, of formula:

a) $\text{La}_{0.6} \text{Sr}_{0.4} \text{Fe}_{0.9} \text{Ga}_{0.1} \text{O}_{3-\delta}$, or

b) $\text{La}_{0.5} \text{Sr}_{0.5} \text{Fe}_{0.9} \text{Ti}_{0.1} \text{O}_{3-\delta}$.

47. (canceled)

48. (canceled)

49. (canceled)

50. (previously presented) The composite of claim 30, wherein compound (C₂) is MgO.